

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings correct typographical errors in FIGs. 2, 3, 5, 6, 8A, 9A, 9B, and 10.

Attachments: Eight (8) Replacement Sheets (FIGs. 2, 3, 5, 6, 8A, 9A, 9B, and 10)
Eight (8) Annotated Sheets (FIGs. 2, 3, 5, 6, 8A, 9A, 9B, and 10)

REMARKS/ARGUMENTS

In this Amendment, Applicant amends paragraphs [0036] and [0075] to correct typographical errors; amends FIGs. 2, 3, 5, 6, 8A, 9A, 9B, and 10 to correct typographical errors; and amends claims 1-17, 19, 20, and 22-48 to improve clarity. No new matter is introduced.

No amendments are made in response to the Examiner's rejections under 35 U.S.C. § 103(a).

Prior to entry of the Amendment, claims 1-48 were pending in the application. After entry of the Amendment, claims 1-48 remain pending in the application.

In the Office Action, the Examiner appears to have rejected claims 1-4 and 21-23 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2003/0099287 A1 to Arambepola ("Arambepola") in view of U.S. Patent No. 5,692,010 to Nielsen ("Nielsen"); rejected claims 5-7 and 24-26 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, and further in view of U.S. Patent No. 6,920,194 B2 to Stopler et al. ("Stopler"); rejected claims 8-10, 27, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of Stopler, and yet further in view of European Patent Application No. 1,178,642 A2 to Belotserkovsky et al. ("Belotserkovsky"); rejected claims 11, 12, 29, and 30 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, and further in view of Belotserkovsky; rejected claims 13, 14, 31, and 32 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of Stopler, and yet further in view of "Equalization of OFDM-Systems by Interference Cancellation Techniques" by Toeltsch et al. ("Toeltsch"); rejected claims 15 and 33 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of U.S. Patent Publication No. 2002/0061081 A1 to Richards et al. ("Richards"), and yet

further in view of Belotserkovsky; rejected claims 16, 17, 35, 37, 38, 41, and 42 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of Stopler, yet further in view of Belotserkovsky, and still further in view of U.S. Patent Publication No. 2003/0035469 A1 to Frank et al. ("Frank"); rejected claims 18, 19, and 39 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of European Patent Application No. 1,043,874 A2 to Nokes et al. ("Nokes"), and yet further in view of European Patent Application No. 1,011,235 A2 to Greenwood ("Greenwood"); rejected claims 43-46 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of World Intellectual Property Organization ("WIPO") Publication No. 00/52892 A1 to Schenk et al. ("Schenk"), and yet further in view of U.S. Patent No. 6,047,022 to Reuven ("Reuven"); and rejected claims 47 and 48 under 35 U.S.C. § 103(a) as being unpatentable over Arambepola in view of Nielsen, further in view of Schenk, yet further in view of Reuven, and still further in view of Belotserkovsky. Applicant notes that the Office Action appears to make no specific rejection of claim 20, 34, or 36.

The Examiner also objected to claim 40, but indicated it would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. Applicant gratefully acknowledges the Examiner's statement that claim 40 would be allowable.

Applicant respectfully traverses the Examiner's rejections of claims 1-19, 21-33, 35, 37-39, and 41-48 under 35 U.S.C. § 103(a). Were the Examiner to have properly rejected claim 20, 34, or 36 under 35 U.S.C. § 103(a), Applicant would respectfully traverse that rejection/those rejections, as well.

Drawings

The attached sheets of drawings correct typographical errors in FIGs. 2, 3, 5, 6, 8A, 9A, 9B, and 10.

Applicant notes that the Form PTOL-326 in the Office Action does not indicate the status of the drawings filed on March 23, 2004. Applicant requests that the Examiner indicate the status of the drawings—including those filed with this Amendment—in the next paper mailed by the U.S. Patent and Trademark Office (“USPTO”).

Rejection Under 35 U.S.C. § 103(a)—Independent Claim 1

Applicant submits that the Examiner has failed to establish a proper prima facie case of obviousness for at least the following reasons.

First, Arambepola does not disclose an “equalized signal”, contrary to the Examiner’s statement on p. 2/§ 3 (that is subsequently contradicted by the Examiner on p. 3/§ 4).

Second, Applicant submits that Arambepola does not disclose “estimating impulse noise” in a received signal. Instead, it discloses detecting impulse noise and comparing the detected impulse noise to a pair of thresholds (related to amplitude and duration). Thus, Arambepola can be more properly characterized as determining whether or not impulse noise is present, rather than estimating the impulse noise itself.

Third, Arambepola does not disclose removing a portion of noise from a received signal. Instead, it discloses zeroing out the received signal if the detected impulse noise exceeds the pair of thresholds discussed above. Thus, it removes the received signal itself, not a portion of noise from the received signal.

Fourth, because of the above, Arambepola does not disclose “estimating impulse noise in the equalized signal”.

Fifth, because of the above, Arambepola does not disclose “removing a portion of the noise from the equalized signal as a function of the estimated impulse noise”.

Sixth, Applicant submits that Nielsen does not disclose “estimating impulse noise” in a received signal. Instead, it discloses detecting impulse noise and comparing the detected impulse noise to a threshold (related to amplitude). Thus, Nielsen can be more properly characterized as determining whether or not impulse noise is present, rather than estimating the impulse noise itself.

Seventh, Nielsen does not disclose removing a portion of noise from a received signal. Instead, it discloses zeroing out a feedback signal if the detected impulse noise exceeds the threshold related to amplitude discussed above. Thus, it zeroes out a feedback signal, but it does not remove a portion of noise from the received signal.

Eighth, because of the above, Nielsen does not disclose “estimating impulse noise in the equalized signal”.

Ninth, because of the above, Nielsen does not disclose “removing a portion of the noise from the equalized signal as a function of the estimated impulse noise”.

As a result, Applicant submits that neither Arambepola, Nielsen, nor any proper combination of Arambepola and Nielsen teaches or suggests either “estimating impulse noise in the equalized signal” or “removing a portion of the noise from the equalized signal as a function of the estimated impulse noise”. Applicant further submits that the Examiner does not allege that Belotserkovsky, Frank, Greenwood, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record overcomes the deficiencies discussed above with respect to Arambepola and/or Nielsen.

For all of these reasons, Applicant submits that independent claim 1 is patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, either alone or in any proper combination. Applicant further submits that dependent claims 2-19 are patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, at least for the same reason that claim 1 is patentable, from which claims 2-19 directly or indirectly depend.

Rejection Under 35 U.S.C. § 103(a)—Independent Claim 20

Although, as discussed above, the Office Action appears to make no specific rejection of claim 20, Applicant submits that for reasons similar to those discussed with respect to claims 1-19, neither Arambepola, Nielsen, nor any proper combination of Arambepola and Nielsen teaches or suggests either “an impulse-noise estimator operable to estimate impulse noise based on the estimated total noise” or “a noise compensator operable to remove a portion of impulse noise from the equalized signal as a function of the estimated impulse noise.” Applicant further submits that the Examiner does not allege that Belotserkovsky, Frank, Greenwood, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record overcomes the deficiencies discussed above with respect to Arambepola and/or Nielsen.

For at least these reasons, Applicant submits that independent claim 20 is patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, either alone or in any proper combination. Applicant further submits that dependent claims 21-42 are patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes,

Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, at least for the same reason that claim 20 is patentable, from which claims 21-42 directly or indirectly depend.

Rejection Under 35 U.S.C. § 103(a)—Independent Claim 43

Applicant notes that the Examiner is relying on a foreign-language reference for this rejection (in this situation, Schenk is a German-language reference). And Applicant understands the Examiner to be relying on the underlying document, and not simply the abstract, in the rejection. However, the Examiner has failed to provide an English-language translation of Schenk, as required in MPEP 706.02.II.

As a result, the Examiner has failed to establish a proper prima facie case of obviousness.

For at least this reason (and those discussed above with regard to claims 1-42), Applicant submits that independent claim 43 is patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, either alone or in any proper combination. Applicant further submits that dependent claims 44 and 45 are patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, at least for the same reason that claim 43 is patentable, from which claims 44 and 45 directly depend.

Rejection Under 35 U.S.C. § 103(a)—Independent Claim 46

As discussed above, Applicant notes that the Examiner is relying on a foreign-language reference for this rejection (Schenk is a German-language reference). And Applicant understands the Examiner to be relying on the underlying document, and not simply the abstract, in the rejection. However, the Examiner has failed to provide an English-language translation of Schenk, as required in MPEP 706.02.II.

As a result, the Examiner has failed to establish a proper prima facie case of obviousness.

For at least this reason (and those discussed above with regard to claims 1-42), Applicant submits that independent claim 46 is patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, either alone or in any proper combination. Applicant further submits that dependent claims 47 and 48 are patentable under 35 U.S.C. § 103(a) over Arambepola, Belotserkovsky, Frank, Greenwood, Nielsen, Nokes, Richards, Reuven, Schenk, Stopler, Toeltsch, and the other art of record, at least for the same reason that claim 46 is patentable, from which claims 47 and 48 directly or indirectly depend.

Request for Reconsideration and Allowance

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and allowance of each of claims 1-48 in connection with the present application is earnestly solicited.

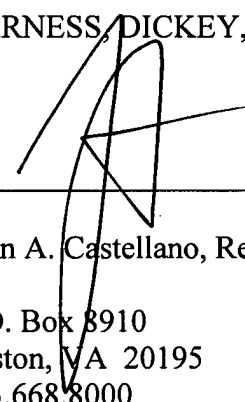
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

If necessary, the Director of the USPTO is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; in particular, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By


John A. Castellano, Reg. No. 35,094

P.O. Box 8910
Reston, VA 20195
703.668.8000

JAC/LFG